

Priestley Johnson Ltd			Page 1																																																																																																																																																																																																																			
Bank House 105-109 New St, Blackrod Bolton BL6 5AG		LINCOLN WAY JAMES ALPE BUILDING 6																																																																																																																																																																																																																				
Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...		Designed by SMJ Checked by																																																																																																																																																																																																																				
Micro Drainage		Source Control 2018.1.1																																																																																																																																																																																																																				
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 100 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>94.248</td><td>1.248</td><td>6.5</td><td>34.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>94.342</td><td>1.342</td><td>6.5</td><td>46.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>94.423</td><td>1.423</td><td>6.5</td><td>56.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>94.462</td><td>1.462</td><td>6.5</td><td>61.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>94.462</td><td>1.462</td><td>6.5</td><td>61.1</td><td>O K</td></tr><tr><td>240 min Summer</td><td>94.451</td><td>1.451</td><td>6.5</td><td>59.8</td><td>O K</td></tr><tr><td>360 min Summer</td><td>94.422</td><td>1.422</td><td>6.5</td><td>56.2</td><td>O K</td></tr><tr><td>480 min Summer</td><td>94.386</td><td>1.386</td><td>6.5</td><td>51.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>94.348</td><td>1.348</td><td>6.5</td><td>47.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>94.309</td><td>1.309</td><td>6.5</td><td>42.3</td><td>O K</td></tr><tr><td>960 min Summer</td><td>94.235</td><td>1.235</td><td>6.5</td><td>33.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>94.114</td><td>1.114</td><td>6.5</td><td>18.3</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>94.014</td><td>1.014</td><td>6.5</td><td>5.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>93.989</td><td>0.989</td><td>5.8</td><td>2.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>93.967</td><td>0.967</td><td>4.4</td><td>1.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>93.955</td><td>0.955</td><td>3.6</td><td>0.7</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>93.947</td><td>0.947</td><td>3.0</td><td>0.4</td><td>O K</td></tr><tr><td>8640 min 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Summer	94.342	1.342	6.5	46.4	O K	60 min Summer	94.423	1.423	6.5	56.3	O K	120 min Summer	94.462	1.462	6.5	61.2	O K	180 min Summer	94.462	1.462	6.5	61.1	O K	240 min Summer	94.451	1.451	6.5	59.8	O K	360 min Summer	94.422	1.422	6.5	56.2	O K	480 min Summer	94.386	1.386	6.5	51.8	O K	600 min Summer	94.348	1.348	6.5	47.0	O K	720 min Summer	94.309	1.309	6.5	42.3	O K	960 min Summer	94.235	1.235	6.5	33.1	O K	1440 min Summer	94.114	1.114	6.5	18.3	O K	2160 min Summer	94.014	1.014	6.5	5.8	O K	2880 min Summer	93.989	0.989	5.8	2.9	O K	4320 min Summer	93.967	0.967	4.4	1.2	O K	5760 min Summer	93.955	0.955	3.6	0.7	O K	7200 min Summer	93.947	0.947	3.0	0.4	O K	8640 min Summer	93.941	0.941	2.6	0.3	O K	10080 min Summer	93.937	0.937	2.4	0.2	O K	15 min Winter	94.288	1.288	6.5	39.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	103.546	0.0	17	30 min Summer	73.269	0.0	32	60 min Summer	49.663	0.0	60	120 min Summer	32.373	0.0	98	180 min Summer	24.673	0.0	132	240 min 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Bank House 105-109 New St, Blackrod Bolton BL6 5AG		LINCOLN WAY JAMES ALPE BUILDING 6			
Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...		Designed by SMJ Checked by			
Micro Drainage		Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	94.400	1.400	6.5	53.5	O K
60 min Winter	94.501	1.501	6.5	66.0	O K
120 min Winter	94.553	1.553	6.5	72.5	O K
180 min Winter	94.548	1.548	6.5	71.8	O K
240 min Winter	94.529	1.529	6.5	69.4	O K
360 min Winter	94.477	1.477	6.5	63.0	O K
480 min Winter	94.415	1.415	6.5	55.4	O K
600 min Winter	94.351	1.351	6.5	47.5	O K
720 min Winter	94.288	1.288	6.5	39.7	O K
960 min Winter	94.174	1.174	6.5	25.6	O K
1440 min Winter	94.018	1.018	6.5	6.3	O K
2160 min Winter	93.980	0.980	5.2	2.1	O K
2880 min Winter	93.965	0.965	4.2	1.1	O K
4320 min Winter	93.949	0.949	3.2	0.5	O K
5760 min Winter	93.940	0.940	2.6	0.3	O K
7200 min Winter	93.934	0.934	2.2	0.2	O K
8640 min Winter	93.930	0.930	1.9	0.1	O K
10080 min Winter	93.927	0.927	1.7	0.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	73.269	0.0	31		
60 min Winter	49.663	0.0	60		
120 min Winter	32.373	0.0	112		
180 min Winter	24.673	0.0	142		
240 min Winter	20.227	0.0	180		
360 min Winter	15.279	0.0	256		
480 min Winter	12.492	0.0	328		
600 min Winter	10.672	0.0	398		
720 min Winter	9.375	0.0	464		
960 min Winter	7.631	0.0	588		
1440 min Winter	5.692	0.0	782		
2160 min Winter	4.231	0.0	1104		
2880 min Winter	3.424	0.0	1468		
4320 min Winter	2.547	0.0	2168		
5760 min Winter	2.067	0.0	2896		
7200 min Winter	1.759	0.0	3552		
8640 min Winter	1.544	0.0	4296		
10080 min Winter	1.384	0.0	5112		
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Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...	Designed by SMJ Checked by	
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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.900	Shortest Storm (mins)	15
Ratio R	0.259	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.210

Time (mins)	Area
From: To:	(ha)
0	4 0.210

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Model Details

Storage is Online Cover Level (m) 96.900

Cellular Storage Structure

Invert Level (m) 93.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.36000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.36000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	0.0	0.0	1.300	130.0	130.0
0.100	0.0	0.0	1.400	130.0	130.0
0.200	0.0	0.0	1.500	130.0	130.0
0.300	0.0	0.0	1.600	130.0	130.0
0.400	0.0	0.0	1.700	130.0	130.0
0.500	0.0	0.0	1.800	130.0	130.0
0.600	0.0	0.0	1.900	130.0	130.0
0.700	0.0	0.0	2.000	130.0	130.0
0.800	0.0	0.0	2.100	130.0	130.0
0.900	0.0	0.0	2.200	130.0	130.0
1.000	130.0	130.0	2.300	130.0	130.0
1.100	130.0	130.0	2.400	130.0	130.0
1.200	130.0	130.0	2.500	130.0	130.0

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